CLAIMS

1. A base station comprising:

a transceiver subsystem; and

a processing subsystem;

wherein the processing subsystem is configured to receive a request for service from a mobile station and to make a determination whether or not to issue a grant to the mobile station in response to the request for grant.

2. The base station of claim 1, wherein the processing subsystem is configured to make the determination independently of a base station controller.

3. The base station of claim 1, wherein the processing subsystem is configured to make the determination independently of one or more additional base stations.

4. The base station of claim 1, wherein the determination is made at the medium access control layer.

5. The base station of claim 1, wherein if the processing subsystem determines that the grant should be issued to the mobile station, the base station is configured to issue the grant.

6. The base station of claim 5, wherein the processing subsystem is configured to identify the mobile station in the grant.

7. The base station of claim 5, wherein the processing subsystem is configured to issue the grant as an individual grant.

8. The base station of claim 7, wherein the processing subsystem is configured to identify in the individual grant a specific service class for which the individual grant is issued.

9. The base station of claim 5, wherein the processing subsystem is configured to issue the grant as a common grant.

10. The base station of claim 9, wherein the processing subsystem is configured to identify in the common grant a specific service class for which the common grant is issued.

11. The base station of claim 5, wherein the processing subsystem is configured to issue at least one individual grant and at least one common grant.

12. A mobile station comprising:

a transceiver subsystem; and

a processing subsystem coupled to the transceiver subsystem and configured to process information received from the transceiver subsystem and to generate information to be transmitted by the transceiver subsystem;

wherein the processing subsystem is configured to generate a request for transmission to a base station, to identify a corresponding grant received from the base station, and to control the transceiver subsystem to transmit data according to the received grant; and

wherein the request specifies one of a set of available classes of service.

13. The mobile station of claim 12, further comprising one or more buffers, wherein each buffer is associated with one of the classes of service.

14. The mobile station of claim 13, wherein the processing subsystem is configured to monitor the buffers and, for each buffer, to generate a transmission request if a threshold amount of data is detected in the buffer.

15. The mobile station of claim 14, wherein the request specifies the class of service associated with the buffer and the amount of data in the buffer.

16. The mobile station of claim 12, wherein the processing subsystem is configured to have the classes of service assigned at call setup.

17. The mobile station of claim 12, wherein the processing subsystem is configured to identify a maximum supportable T/P ratio in the request.

18. The mobile station of claim 17, wherein the processing subsystem is configured to generate feedback while transmitting under a grant, wherein the feedback indicates changes in the maximum supportable T/P ratio.

19. The mobile station of claim 12, wherein the processing subsystem is configured to generate one or more additional requests for service for transmission to the base station if no grant is received in response to a previous request.

20. The mobile station of claim 12, wherein if no grant is received from the base station in response to a request, the processing subsystem is configured to autonomously transmit data to the base station.

21. A system comprising:

a base station; and

one or more mobile stations configured to communicate with the base station via corresponding wireless communication links;

wherein each mobile station is configured to transmit requests for grants to the base station;

wherein the base station is configured to receive requests from the mobile stations, to process the requests, to allocate communication link resources among the mobile stations, and, if necessary, to transmit one or more grants to the mobile stations in accordance with the allocation of communication link resources; and

wherein each mobile station is configured to transmit data to the base station in accordance with any grants received from the base station.

22. The system of claim 21, wherein, for each mobile station, if the mobile station cannot transmit under any grants received from the base station, the mobile station is configured to transmit data autonomously to the base station.

23. The system of claim 21, further comprising a base station controller, wherein the base station is configured to process the requests, allocate communication link resources and transmit grants independently of the base station controller.

24. The system of claim 21, wherein each of the grants specifies a class of service for which the corresponding communication link resources are allocated.

25. The system of claim 24, wherein the grants include one or more individual grants, each of which specifies a corresponding mobile station to which the individual grant is issued.

26. The system of claim 24, wherein the grants include one or more common grants, each of which authorizes any mobile station to transmit data in the specified class of service under the common grant.

27. The system of claim 21, wherein the base station is configured to process the requests and allocate communication link resources among the mobile stations at a medium access control layer.

28. The system of claim 21, wherein each base station further comprises one or more buffers, wherein each buffer is associated with a class of service.

29. The system of claim 28, wherein the mobile station is configured to monitor the buffers and, for each buffer, to generate a transmission request if a threshold amount of data is detected in the buffer.

30. The system of claim 29, wherein the request specifies the class of service associated with the buffer and the amount of data in the buffer.

31. The system of claim 21, wherein the mobile station is configured to identify a maximum supportable T/P ratio in each request.

32. The system of claim 31, wherein the mobile station is configured to generate feedback while transmitting under a grant, wherein the feedback indicates changes in the maximum supportable T/P ratio.

33. The system of claim 21, wherein the mobile station is configured to generate one or more additional requests for service for transmission to the base station if no grant is received in response to a previous request.

34. The system of claim 21, wherein if no grant is received from the base station in response to a request, the mobile station is configured to autonomously transmit data to the base station.

35. A method comprising
receiving a request for a grant at a base station;
processing the request at the base station; and
determining at the base station whether to issue the grant.

36. The method of claim 35, further comprising issuing the grant if the base station determines that the grant should be issued.

37. The method of claim 36, further comprising issuing the grant as an individual grant.

38. The method of claim 37, further comprising identifying a mobile station in the grant.

39. The method of claim 38, further comprising identifying a specific service class in the grant.

40. The method of claim 36, further comprising issuing the grant as a common grant.

41. The method of claim 40, further comprising identifying a specific service class in the grant.

42. The method of claim 36, further comprising issuing at least one individual grant and at least one common grant.

43. The method of claim 35, wherein determining whether to issue the service grant is performed without communicating with a base station controller.

44. The method of claim 43, wherein determining whether to issue the service grant is performed without communicating with one or more additional base stations.

45. The method of claim 35, wherein determining whether to issue the service grant is performed at a medium access layer.

46. The method of claim 35, further comprising: transmitting a request for a grant from a mobile station to the base station, wherein the request specifies one of a set of available classes of service; if a grant corresponding to the request is issued, transmitting data in the specified class according to the received grant; and if no grant corresponding to the request is issued, either transmitting data in the specified class in an autonomous mode or transmitting a subsequent request, or both.

47. The method of claim 46, further comprising monitoring one or more buffers, wherein each buffer is associated with one of the classes of service and, for each buffer, generating a corresponding request if a threshold amount of data is detected in the buffer.

48. The method of claim 47, further comprising specifying in the request the class of service associated with the buffer and the amount of data in the buffer.

49. The method of claim 47, further comprising specifying in the request a maximum supportable T/P ratio.

50. The method of claim 49, further comprising generating feedback while transmitting under a grant, wherein the feedback indicates changes in the maximum supportable T/P ratio.

51. The method of claim 46, further comprising assigning the classes of service for the mobile station at call setup.

52. A method comprising

transmitting a request for a grant from a mobile station, wherein the request specifies one of a set of available classes of service;

if a grant corresponding to the request is issued, transmitting data in the specified class according to the received grant; and

if no grant corresponding to the request is issued, either transmitting data in the specified class in an autonomous mode or transmitting a subsequent request, or both.

53. The method of claim 52, further comprising monitoring one or more buffers, wherein each buffer is associated with one of the classes of service and, for each buffer, generating a corresponding request if a threshold amount of data is detected in the buffer.

54. The method of claim 53, further comprising specifying in the request the class of service associated with the buffer and the amount of data in the buffer.

55. The method of claim 53, further comprising specifying in the request a maximum supportable T/P ratio.

56. The method of claim 55, further comprising generating feedback while transmitting under a grant, wherein the feedback indicates changes in the maximum supportable T/P ratio.

57. The method of claim 52, further comprising assigning the classes of service for the mobile station at call setup.